1+1+1+…

Personal Perspective on Women in Physics

1st Workshop on HET & Gender
CERN, 28 September 2018

Yossi Nir

Weizmann Institute of Science

Women in Physics – Why should we care?

Let me state the obvious:

Better Physics

- Talent
- Diversity

Better Academy

- Organizational performance

Better Society

- Fairness

Plan of talk

About myself

- Weizmann Institute
- Israel

Towards gender equality

- Actions taken by Weizmann Institute

From stories to insights

- Obtaining a personal perspective

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- My own activities

I, Weizmann, Israel

CV

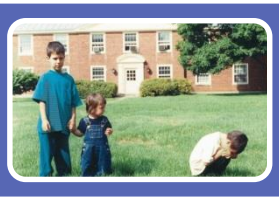
Postdoc at SLAC

1988-1990

PI at Weizmann

1990-1994: tenure track

1994-present: professor



Member at IAS

1999-2000

Member of CERN's SPC

2016-present

Further positions at WI

2005-2006: Chairperson of the WI committee for promotions and appointments

2008-2015: Dean of physics

In the beginning…

The faculty of Physics at WI was established in 1954

Between 1954-2008 there has not been even one female physicist in the faculty

I joined the faculty in 1990; I was puzzled by the absence of female physicists in the faculty

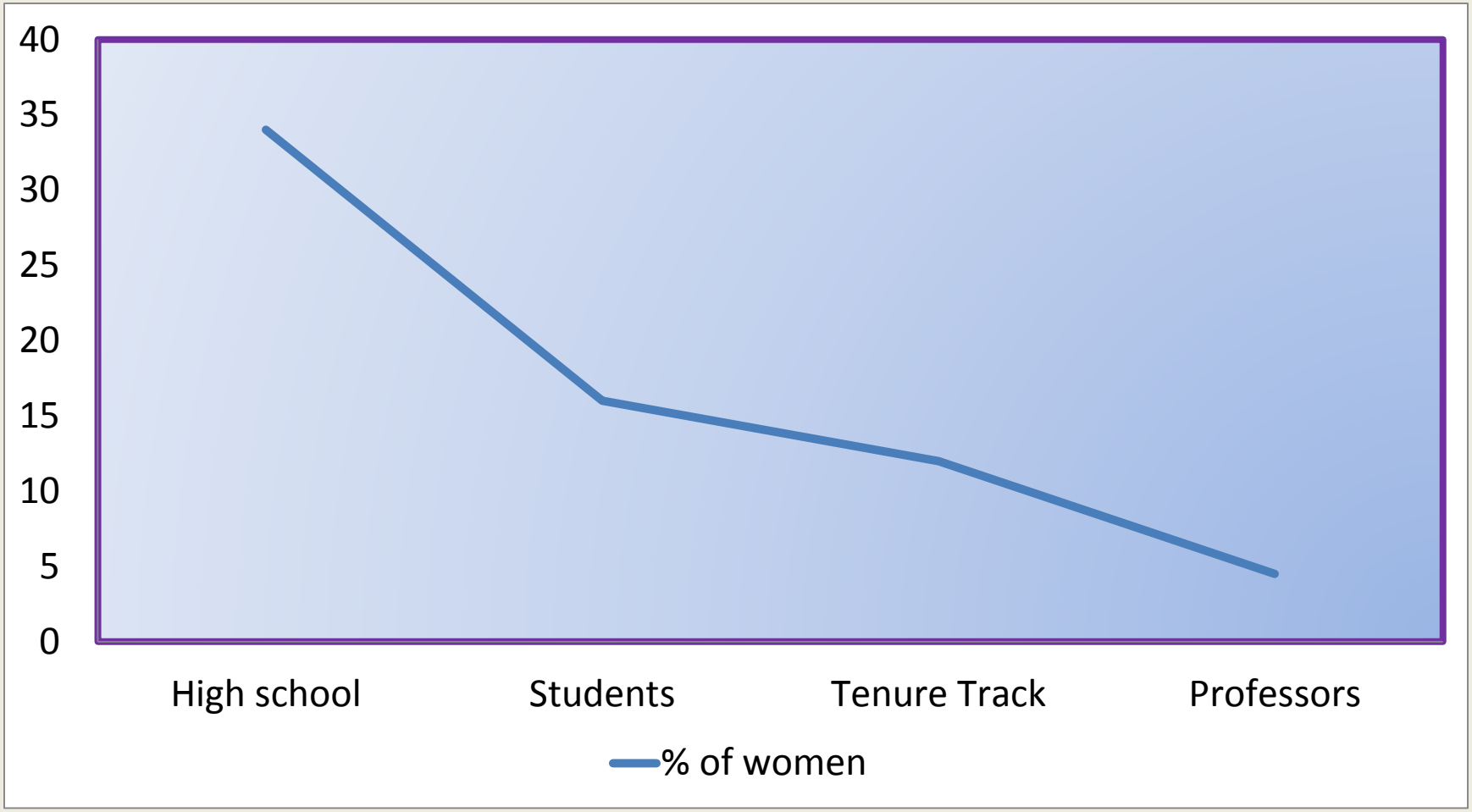
I was even more disturbed by the fact that no one seemed to think that the faculty has a problem

Physics at Weizmann Institute

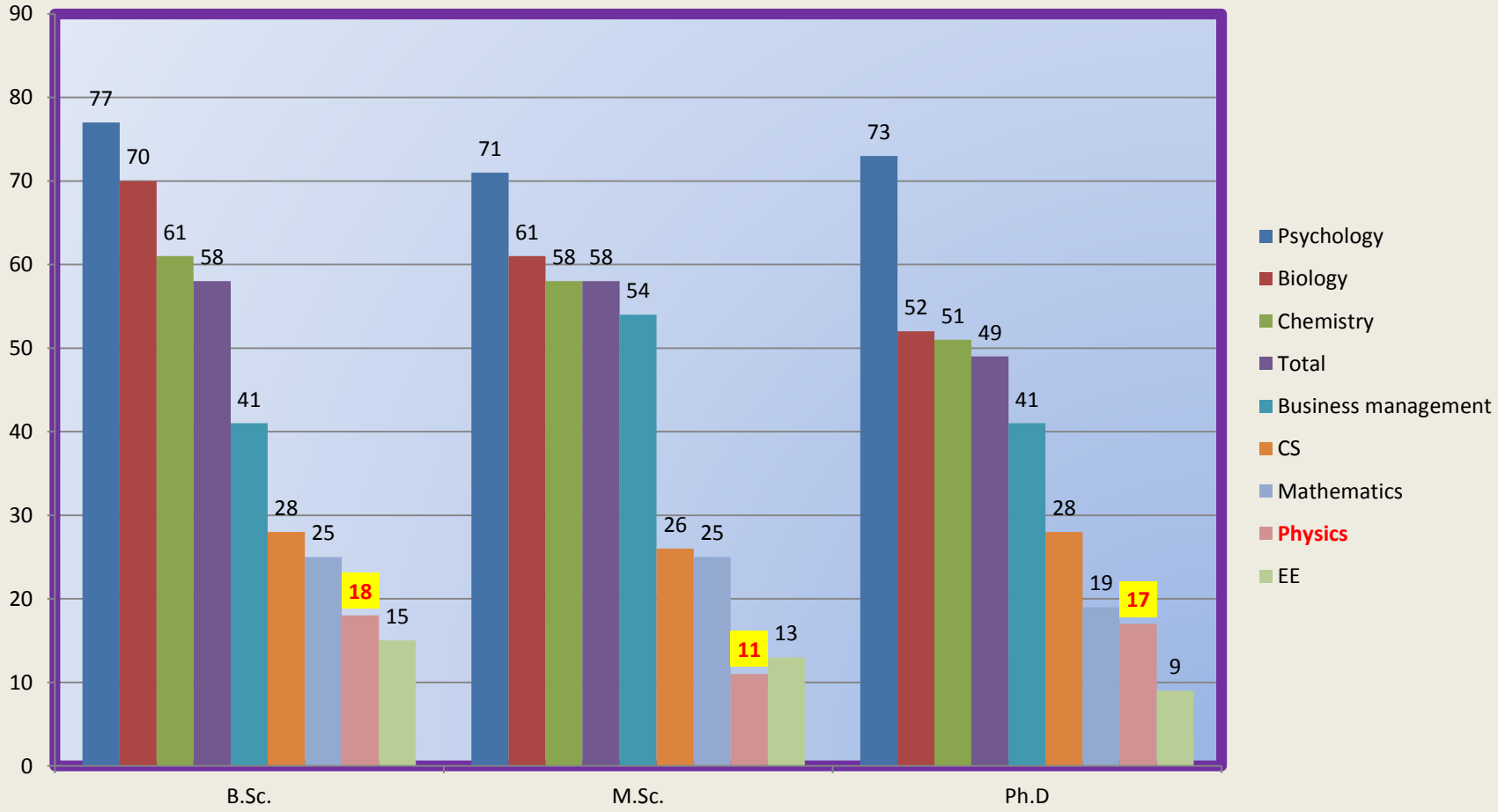
	Female	Male	% of women
Physics - Tenure Track	2	10	17%
Physics - Professor	1	34	3%
Physics - Total	3	44	6%
Weizmann - Total	42	223	16%

First 54 years of the faculty of physics:
Zero (0) female PI's

Physics in Israel



Academy in Israel



Actions at WI

Women at Weizmann

Faculty	# of PI's	Women	% of Women
Biology	60	14	23%
Biochemistry	53	11	21%
Chemistry	59	8	14%
Mathematics & CS	43	6	14%
Physics	50	3	6%
WI	265	42	16%

Encouraging post-doctoral training overseas

Post-doctoral research award for women in science

- For post-doc training abroad
- For combined post-doc training in Israel and abroad

Meetings of graduate students with returning scientists

- Some meetings include the spouses

Information on post-doc opportunities

Financial support for travelling

Empowering and encouraging graduate students

- Young Female Leaders in Science Workshop
- Managing motherhood and scientific research career
- Graduate student forums
- Mentoring program
- Young mother support for traveling

Managing motherhood and scientific research career

Increased awareness of gender equality on campus

- Unconscious bias training
- Weizmann “Women and Science Prize”
- International Women’s Day lecture

International Women's Day lecture

From stories to insights

Obtaining a personal perspective

Among my co-authors:

M.C. Gonzalez-Garcia, H.R. Quinn, M. Leurer, V. Ben-Hamo, A.E. Nelson, F. Borzumati, M.H. Schune, G. Eyal, Y. Shadmi, G. Barenboim, S. Laplace, T. Kashti, G. Hiller, S. Davidson, Y. Hochberg, S.T. French, M. Losada, A. Efrati, A. Dery, C. Frugiuele, M. Shavit

A female physicist's CV

Citation summary results	Citeable papers	Published only
Total number of papers analyzed:	172	85
Total number of citations:	37,275	34,353
Average citations per paper:	216.7	404.2
Breakdown of papers by citations:		
Renowned papers (500+)	10	9
Famous papers (250-499)	10	8
Very well-known papers (100-249)	14	10
Well-known papers (50-99)	25	21
Known papers (10-49)	66	25
Less known papers (1-9)	37	10
Unknown papers (0)	10	2
h_{HEP} index [?]	57	49

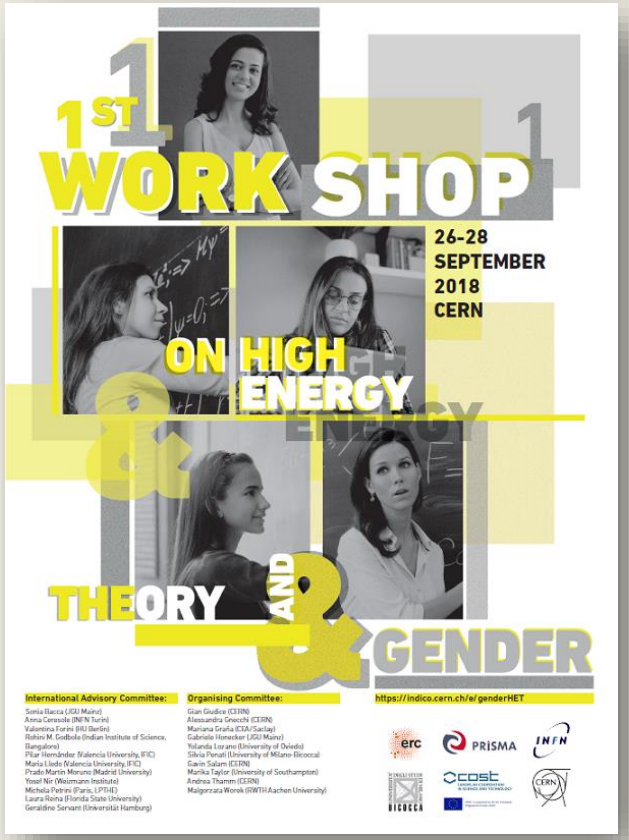
- Largest total number of citations
- Three most cited papers
- …

- Professorship at the age of 60
- 36 years after completion of PhD
- 7 years before retirement

A Committee
Tokenism

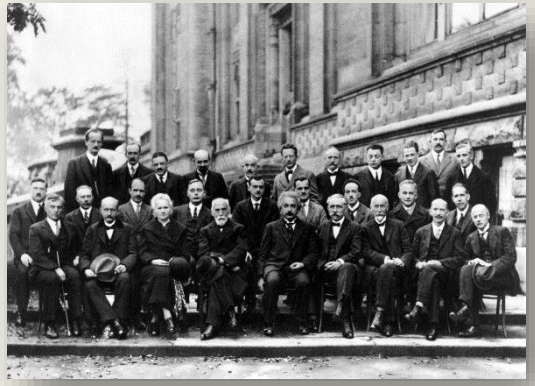
International Advisory Committee:

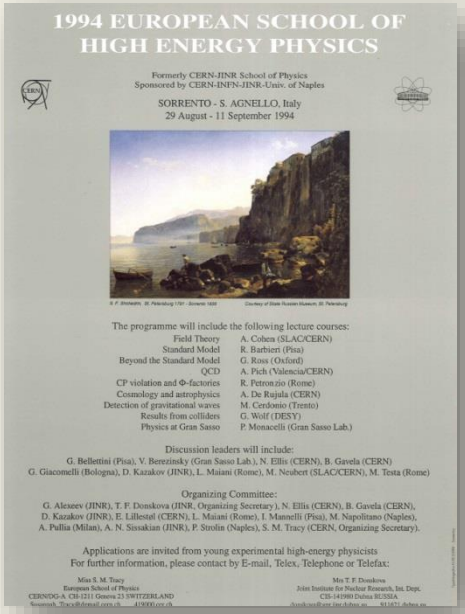
Sonia Bacca (JGU Mainz)
Anna Ceresole (INFN Turin)
Valentina Forini (HU Berlin)
Rohini M. Godbole (Indian Institute of Science, Bangalore)
Pilar Hernández (Valencia University, IFIC)
Maria Lledo (Valencia University, IFIC)
Prado Martin Moruno (Madrid University)
Yosef Nir (Weizmann Institute)
Michela Petrini (Paris, LPTHE)
Laura Reina (Florida State University)
Geraldine Servant (Universität Hamburg)

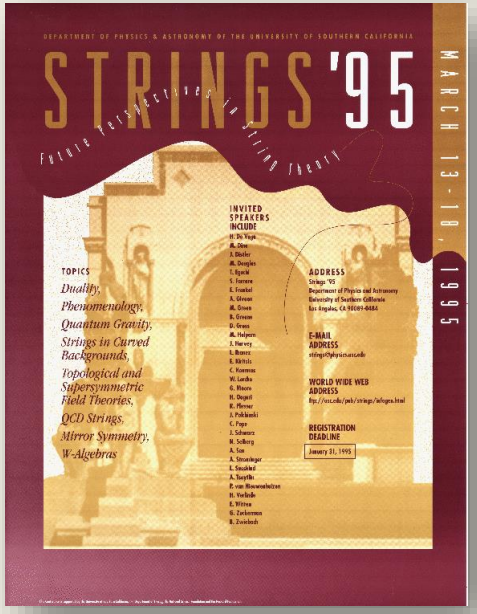


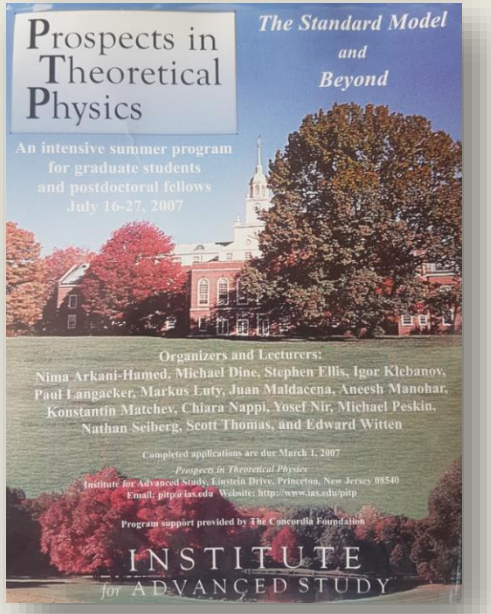
Schools, Workshops, Conferences
Role models

- Students
- Lecturers
- Social activities









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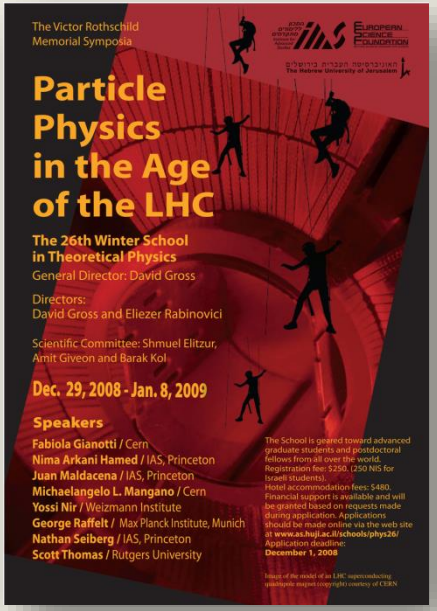
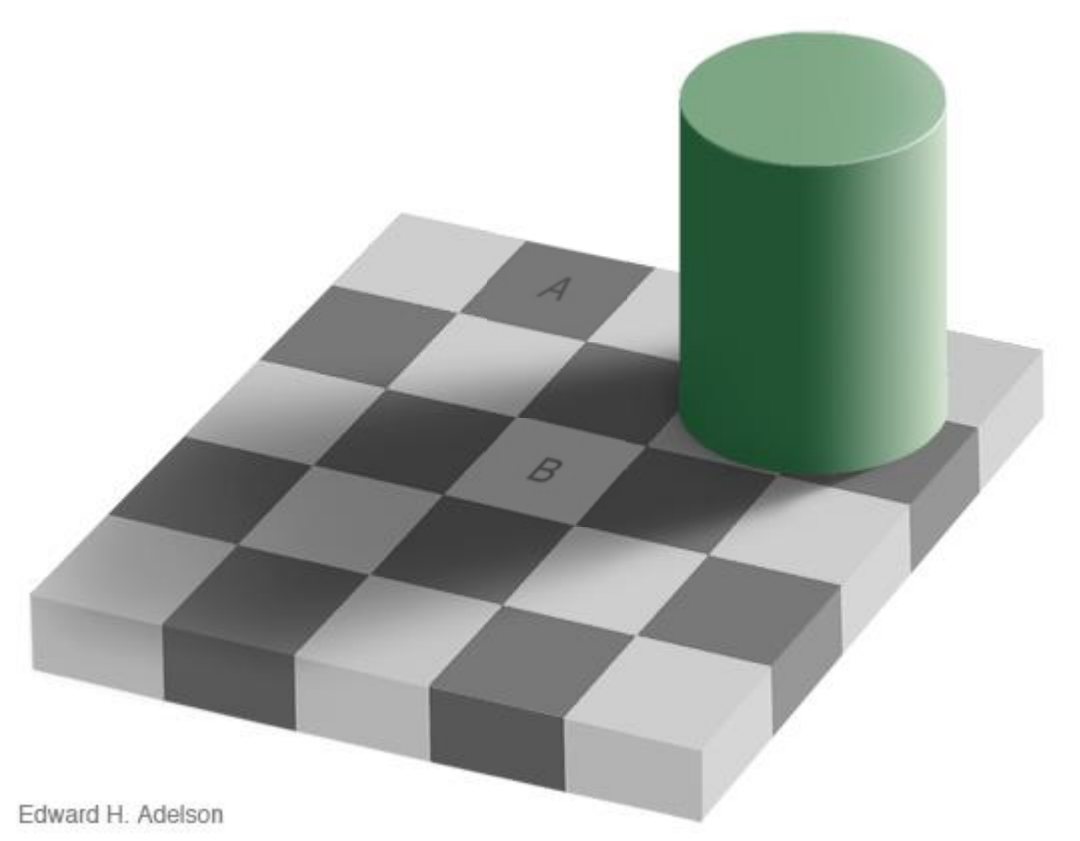
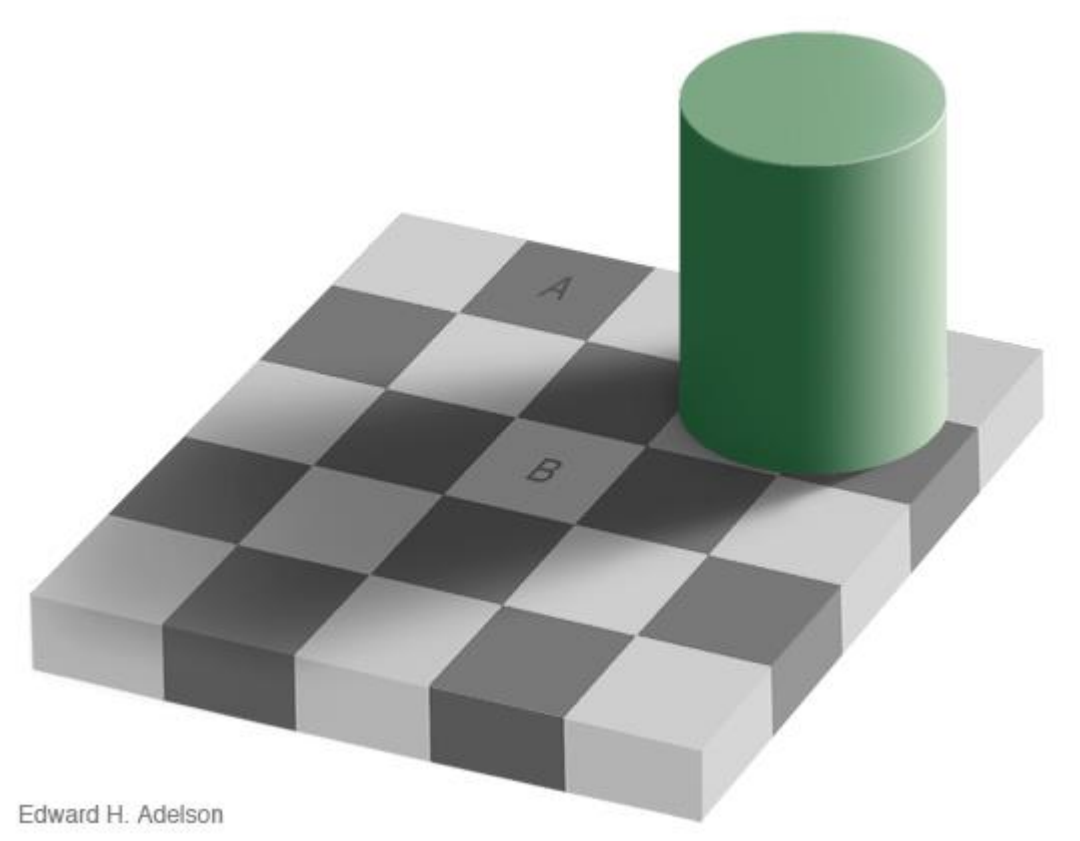


The technician at the lab
Chilly climate

The man who was there
Unconscious bias



The man who was there
Unconscious bias



The two candidates
Unconscious bias

- Hard working
- Highly motivated
- Compassionate
- Helpful to peers
- Very dependable
- Insatiable

- Accomplished
- Insightful
- Excellent
- Independent
- Skilled
- Ambitious

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“

My personal perspective

(This was just a small sample of the stories)

There **is** a gender problem in physics in the academy

- (Unconscious) bias, chilly climate, micro-aggressions, double burden…

Can **I** do something?

- Next part

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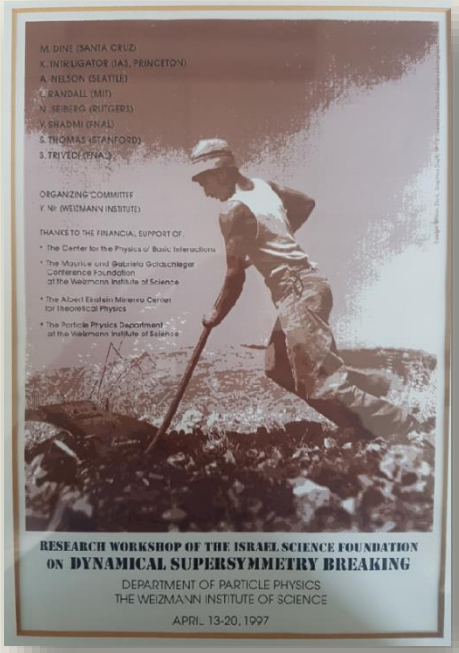
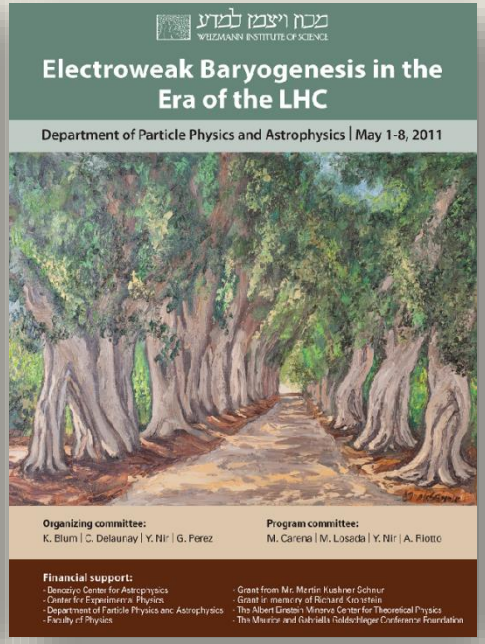
My activities





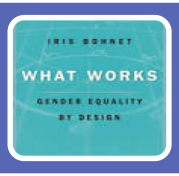
Reading

A Singularly Unfeminine Profession

Mary K. Gaillard

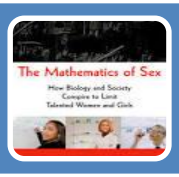
Beyond Curie

Scott Calvin



What Works: Gender equality by design

Iris Bohnet



The Mathematics of Sex

Stephen J. Ceci and Wendy M. Williams

Women Matter

McKinsey&Company

Speaking up

READERS' FORUM

Commentary

Diversity in physics: Are you part of the problem?

Many leading academic physics departments have no underrepresented-minority faculty members. My own department at the University of Washington has never had an African American tenure-track faculty member. That state of affairs is taken for granted, but it should be regarded as shameful.

At Stanford University in the late 1980s, I was the first tenure-track woman hired in physics; the applied physics department and SLAC still had none. Yet my appointment (granted to increase diversity in the physics department) immediately made the percentage of female physics faculty at Stanford well above the national average. At that time, having no women in a physics department was viewed as normal.

I often get asked, "Why are there so few women in physics?" That anyone would ask that question shows how oblivious many people are to the sexism and bias that permeate our society and physics culture.[1] I may not be able to fully answer the question, but I can tell you why there are women *like me* in physics. Because we love math and nature. Because we like doing computations and figuring things out, step by

ALL OF US. Watercolor and pencil on paper (2000). Warren W. Buck, University of Washington, Bothell.

Data Base

Data base on all Israeli physicist female postdocs

- Contact details
- CV
- List of publications

Personal communication with each, every half a year

- Asking what is new
- Updates on CV and LoP
- Plans to visit Israel?

Goals of data base

- We must not miss a worthy female candidate
- We show that we care
- We advice (mentorship)
- In some cases, we help (sponsorship)
- Attach to WI (getting an edge when competing with other institutes)
- Invite to WI when visiting Israel
- Help with travel expenses when visiting Israel

Global Data Base?

Can the idea be extended to a global scale?

I would like to have your feedback on this

Research

“Women in Physics: why so few?”

In collaboration with Meytal Eran-Jona, a sociologist and gender-expert

Funded, first, by WI and, later, by the IMoS

Emphasis on the Israeli context

- but hopefully also some “universal” insights

Focus on

- Deciding to go or not to go for a postdoc
- Competing for a tenure track position

Research plan

Literature survey

Data collection

Interviews

- Female PhD students from all six universities
- **Female postdocs**
- All female PI's
- All university president's advisors for gender
- PI's, deans

Surveys

- All physics PhD students
- HR managers in organizations employing physicists

Learning from successes

Research goals

Understand the personal perspective

- Professional
- Financial
- Family-wise

Understand the landscape

- Person
- Organization
- Labor market

Hopefully, make practical recommendations

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Summary

- There is gender imbalance in physics in the academy
- We will benefit if we fix this situation
- No silver bullet (a-la blind auditions for orchestras)
- There are many possible avenues
- Changes should be driven by organizations and individuals alike
- **You** can contribute